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NSC BRIEFING

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23 October 1957

**SCIENTIFIC AND TECHNICAL ACHIEVEMENTS WHICH
USSR MAY REVEAL ON 7 NOVEMBER 1957**

- I. Possible major developments--considered the most likely from standpoint of present capability and maximum psychological impact.
 - A. Rocket to moon --existing studies indicate that 1500 pounds of gross weight in a three-stage rocket system will deliver one pound of payload to the moon. This would mean that 200 pounds could be delivered for a gross weight of 300,000 pounds, which is the same gross weight we currently estimate for the Soviet 5500 nautical mile ICBM.
 - B. The accuracy of the guidance components required to hit the moon with a rocket do not appear as difficult as those required to impact an ICBM at 5500 nautical miles with a CEP of 5 nautical miles and the thinness of the moon's atmosphere would pose no re-entry heat problem. A 200 pound payload could conceivably consist of a substance which could produce a "visible light" when impacted on the moon.
 - C. As it happens, on 7 November an eclipse of the moon begins at 0330.5 Pacific Standard Time. It will not be visible in the eastern part of the United States. The beginning will be visible generally in North America except the eastern part, the Pacific Ocean except the southeastern part, Australia, Asia except the southwestern part, the eastern part of the Indian Ocean and the Arctic regions. The ending will be visible generally in the Arctic regions, Alaska, the western part of the Pacific Ocean, Australia, Asia, the Indian Ocean, eastern Europe and northeastern Africa.

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- D. During this period of eclipse, a small light appearing on the moon should be visible to telescopes trained on the moon. It is also speculated, since the trip will take about two and one-third days, that such a vehicle could carry a radio transmitter which would allow the world population to follow its progress. The world would probably be notified after the Russians were assured that the missile had been guided into its desired trajectory.**
- 1. There is very little direct evidence that the above action will be taken by the Soviet Union. However, two recent pieces indicate that such could be the case.**
 - 2. Leonid Sedov, senior Soviet delegate to the October Barcelona Conference of Astronauts and chairman of Soviet earth satellite, said that research rocket travel to the moon should be taken seriously and that the USSR is definitely on the threshold of fantastic developments along these lines.**
 - 3. The Associated Press on 16 October 1957 carried a statement, allegedly that of a European scientist reporting conversations with Soviet scientists that the Soviets will try to hit the moon with rockets November 7. Validity of this statement has not been established. Reportedly, the Soviets will aim three huge rockets at the moon from "the same spot whence the Red Satellite was sent aloft."**
- E. The psychological impact of Soviet success in reaching the moon is incalculable. US scientific prestige may suffer "a body blow" from which it might never recover.**

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F. Earth satellite--the second satellite will probably have much more complex instrumentation with the additional possibility of a live animal such as a dog being sent into space in the satellite and returned to earth in a detachable package. There have been several unofficial announcements of a possible satellite launching on 7 November but no official confirmation.

II. Other possible developments of considerable impact.

- A. Controlled thermonuclear reaction--Soviet basic research in support of controlled thermonuclear reaction is extensive. Soviet claims of initial success in this field can neither be refuted nor confirmed and the possibility of further announcements on 7 November in this field cannot be ruled out. Soviet claims of substantial success would have impact on the scientific community and if played up properly perhaps on the general public.
- B. ICBM firing with nuclear warhead--current thinking gives the Soviets full capability for such a demonstration if so desired. Believed highly improbable because of: (1) difficulty of demonstrations, (2) ability to do so previously implied in first ICBM announcement, and (3) major announcement on 7 November probably will be of a more peaceful nature.

III. Developments likely to occur--(not necessarily earthshaking in significance with possible exception of D below).

- A. Nuclear propelled icebreaker--hull scheduled for launching in Leningrad on 7 November. Could be played up as first surface vessel using nuclear power.

- B. Long-range, 180 passenger, turboprop transport--discussed in Soviet press as "the forthcoming giant aircraft, 'Rossiya' (Russia)."
- C. Guided Missile display--two canvas-covered trailers 60-70 feet long, believed to be for guided missiles, were observed during the first large-scale rehearsal on 17 October for the scheduled parade.
- D. Nuclear submarine with missile launching capability--Soviets have been given the capability of developing a nuclear reactor suitable for submarine propulsion in 1957 and [REDACTED] 25X1
[REDACTED] have indicated the actual existence of a Soviet nuclear submarine. If such a sub with a missile launching capability were revealed it would have considerable international impact.